



*Proven Technology for
Optimal Performance*

STRATIS™
Externally Geared Generator-Loaded
Hydraulic Turbines

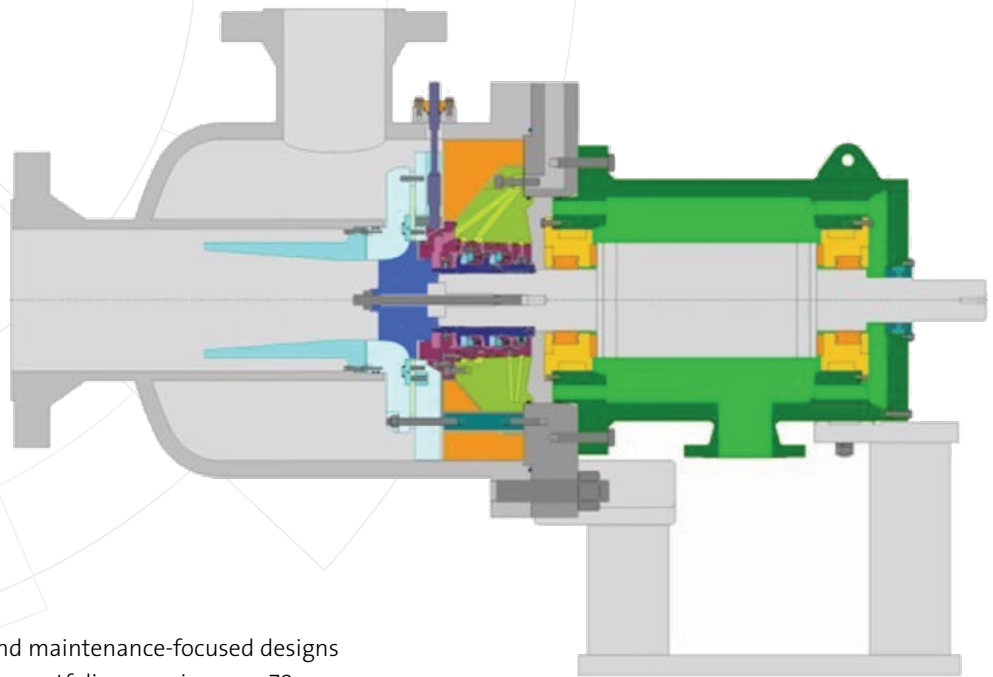
ROTOFLOW
An Air Products Business

The Ultimate Match of Efficiency & Long-Term Performance

The result of over 70 years of insight and expertise, STRATIS™ generator-loaded hydraulic turbines from Rotoflow are the ultimate match of high efficiency and powerful performance, making them an exceptional long-term capital investment.

Power recovery is achieved by loading the turbine with an electric generator either coupled directly or through a gear reducer. Operability and maintainability have been optimized through millions of successful hours of cryogenic turbomachinery operation.

Rotoflow® generator-loaded designs are found around the world providing refrigeration and economic power recovery in air separation and liquefaction facilities as well as various oil and gas applications.



- Operational and maintenance-focused designs evolving from a portfolio spanning over 70 years
- High-efficiency turbines and generators for maximum power recovery
- Hydrodynamically optimized to your specific process
- Zero-clearance inlet guide vanes generate accurate flows and high efficiencies
- Precision helical gearing manufactured to AGMA/ISO 1328-1 Grade 5 or better for long service life, with low vibration and low noise levels
- Cartridge-style plug-in units and horizontally split gearbox minimize downtime for inspection and maintenance
- Familiar machinery technologies provide level of comfort and understanding over “black box” designs
- Skidded package arrangement allows substantial flexibility and customization
- Worldwide aftermarket service and support
- Maximizes uptime with warm gas startup and no need for liquid cool-down
- High efficiency (typically greater than 84% isentropic)

STRATIS™

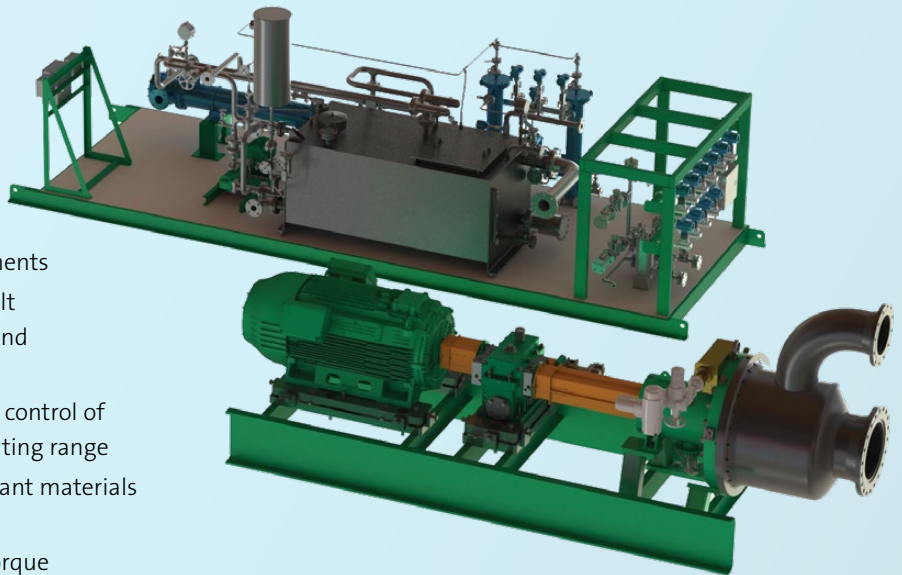
STRATIS hydraulic turbines build upon dense fluid expander technology that has successfully been used for decades in ASUs and leverage it for LNG applications, ensuring that you benefit from Rotoflow's in-depth knowledge of the LNG industry and its equipment needs.

A key element of STRATIS reliability is the fact that these hydraulic turbines start up warm and do not require a liquid cool-down, which means your plant is online faster with less downtime.

STRATIS leverages proven Rotoflow technologies including hydrodynamic oil lube bearings, tandem dry gas seal cartridge, direct-drive or geared equipment train offering, single-stage radial inflow turbine, and adjustable nozzles.

TECHNICAL HIGHLIGHTS

- Fully skidded system incorporates motor-generator
- Tandem dry gas seal arrangement
- Simplified startup and shutdown sequence allows for smooth machine operation
- Exceeds API rotordynamic requirements
- Proven high-speed and high-load tilt pad bearings handle steady-state and transient thrust loads
- Electric actuator provides precision control of inlet guide vanes over a wide operating range
- Selected high-strength, wear-resistant materials and anti-friction coatings
- Robust impeller attachment and torque transmission design for high reliability



SPECIFICATIONS

Nominal Unit Capacity	500 to 3100 am ³ /hr
Turbine Operating Pressure	Up to 96 barg
Turbine Inlet Temperature	-185°C to 0°C
Refrigeration Power	Up to 4 MW
Turbine Efficiency	Up to 90%
Speed	Up to 16,000 rpm
Fluids	Methane (LNG), Ethylene, Mixed Refrigerants (MRL)
Hazardous Area Design	Comply with NEC, IEC, ATEX and other Classifications
Quality Assurance	ISO 9001 Certified Since 1997 (Currently ISO 9001:2015)

OPTIONS

- Turbine and gearbox spare assembly
- International code compliance
- Expanded API and customer specification compliance
- Package control system
- Inlet strainers
- Inlet trip valve
- Turbine bypass valve
- API or non-API accessory systems (lube oil and seal systems)
- API or industrial-type gearbox and generator options available
- Accessory and/or control system integral/ installed on main turbine skid or separate skid

RELIABILITY. VALUE. PEACE OF MIND.

Technical innovation expertly integrated with decades of know-how is the foundation for Rotoflow's valued products, proven performance, and world-class service. When you invest in a STRATIS hydraulic turbine, you get the peace of mind that comes from knowing it's built on this very same foundation. You also get the value and reliability you have come to expect from Rotoflow.

As the industry's most trusted name in turbomachinery, it makes sense for Rotoflow to bring this essential turbine technology to you. For more information, please contact us at:



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